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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,962	06/06/2006	Eric Seitz	ISHI 2I.053 (334786-00027	1792

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EXAMINER	
DOERRLER, WILLIAM CHARLES	
ART UNIT	**PAPER NUMBER**
3744	
MAIL DATE	**DELIVERY MODE**
11/20/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/581,962	SEITZ ET AL.	
	Examiner	Art Unit	
	William C. Doerrler	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5-10-2007, 6-6-2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Schultz (3,677,295).

Schultz discusses in lines 70-75 of column 2, a rotary valve with a thrust bearing between a rotary disk and a valve seat which contact each other. Contact between parts is seen as being separated by less than 25 micrometers.

Claims 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Warf (5,315,963).

Warf discusses between line 44 of column 3 and line 2 of column 4, a rotary valve with a thrust bearing between a rotary disk and a valve seat which contact each other. Contact between parts is seen as being separated by less than 25 micrometers.

Claims 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Holl (2,832,561)

Holl discusses in lines 6-28 of column 2, a rotary valve with a thrust bearing between a rotary disk and a valve seat which contact each other. Contact between parts is seen as being separated by less than 25 micrometers.

Claims 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hall (2,319,733).

Hall shows in figure 1, a rotary valve with a thrust bearing between a rotary disk and a valve seat which contact each other. Contact between parts is seen as being separated by less than 25 micrometers.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1,2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shultz in view of either Heron (6,694,749) or Kawano (2002/0066276).

Schulz discloses applicants' basic inventive concept, a rotary valve having a thrust bearing attached to the valve seat to reduce wear between the disk and the seat, substantially as claimed with the exception of using the rotary valve in a pulse tube cooler. Heron and Kawano each show rotary valves to be old in the pulse tube cooling art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of either Heron or Kawano to use a rotary valve with a thrust bearing in a pulse tube cooler to reduce wear between the parts to make the valve easier to turn and increase projected lifetime of the parts.

Claims 1,3 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holl in view of either Heron (6,694,749) or Kawano (2002/0066276).

Holl discloses applicants' basic inventive concept, a rotary valve having a thrust bearing attached to the valve disk to reduce wear between the disk and the seat, substantially as claimed with the exception of using the rotary valve in a pulse tube cooler. Heron and Kawano each show rotary valves to be old in the pulse tube cooling art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of either Heron or Kawano to use a rotary valve with a thrust bearing in a pulse tube cooler to reduce wear between the parts to make the valve easier to turn and increase projected lifetime of the parts. In regard to claim 8, Fixtures are well known to attach bearings to a part and as such would have been obvious to an ordinary practitioner in the art to ensure a proper mounting of the bearing.

Claims 1,3 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall in view of either Heron (6,694,749) or Kawano (2002/0066276).

Hall discloses applicants' basic inventive concept, a rotary valve having a thrust bearing attached to the valve disk to reduce wear between the disk and the seat, substantially as claimed with the exception of using the rotary valve in a pulse tube cooler. Heron and Kawano each show rotary valves to be old in the pulse tube cooling art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of either Heron or Kawano to use a rotary valve with a thrust bearing in a pulse tube cooler to reduce wear between the parts to make the valve easier to turn and increase projected lifetime of the parts. In regard to claim 8, Fixtures are well known to attach bearings to a part and as such would have been obvious to an ordinary practitioner in the art to ensure a proper mounting of the bearing.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rabenau (4,925,464) in view of either Heron (6,694,749) or Kawano (2002/0066276).

Rabenau discloses applicants' basic inventive concept, a rotary valve having a thrust bearing attached to the valve seat to reduce wear between the disk and the seat which contact each other, substantially as claimed with the exception of using the rotary valve in a pulse tube cooler. Heron and Kawano each show rotary valves to be old in the pulse tube cooling art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of either Heron or Kawano to use a rotary valve with a thrust bearing in a pulse tube cooler to reduce wear between the parts to make the valve easier to turn and increase projected lifetime of the parts.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warf in view of either Heron (6,694,749) or Kawano (2002/0066276).

Warf discloses applicants' basic inventive concept, a rotary valve having a thrust bearing attached to the valve disk and to the valve seat to reduce wear between the disk and the seat, substantially as claimed with the exception of using the rotary valve in a pulse tube cooler. Heron and Kawano each show rotary valves to be old in the pulse tube cooling art. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention from the teaching of either Heron or Kawano to use a rotary valve with a thrust bearing in a pulse tube cooler to reduce wear between the parts to make the valve easier to turn and increase projected lifetime of the parts. In regard to claim 8, Fixtures are well known to attach bearings to a part and as such would have been obvious to an ordinary practitioner in the art to ensure a proper mounting of the bearing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Doerrler whose telephone number is (571) 272-4807. The examiner can normally be reached on Monday-Friday 6:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

William C Doerrler
Primary Examiner
Art Unit 3744

WCD

/William C Doerrler/
Primary Examiner, Art Unit 3744